

What is claimed is:

1. A method for powering an implantable medical device with an electrochemical cell, the cell comprising an alkali metal anode coupled to a cathode of a cathode active material activated with an electrolyte, comprising the steps of:

- a) connecting a negative terminal and a positive terminal of the cell to the implantable medical device;
- b) powering the implantable medical device with the cell;
- c) monitoring the depth-of-discharge (DOD) of the cell; and
- d) upon the cell reaching about 15% to about 25% DOD, discharging the cell to deliver discharge capacity equal to at least about 2% DOD within 60 days.

2. A method for powering an implantable medical device with an electrochemical cell, the cell comprising an alkali metal anode coupled to a cathode of a cathode active material activated with an electrolyte, comprising the steps of:

- a) connecting a negative terminal and a positive terminal of the cell to the implantable medical device;
- b) powering the implantable medical device with the cell;
- c) monitoring the depth-of-discharge (DOD) of the cell;
- d) upon the cell reaching about 15% to about 25% DOD, causing the cell to deliver at least a first current pulse discharge of significantly greater amplitude than that of a pre-pulse current immediately prior to the first current pulse discharge;

e) waiting a time interval; and
f) discharging the cell to deliver at least a second current pulse discharge of significantly greater amplitude than that of a pre-pulse current immediately prior to the second current pulse discharge after the time interval, wherein the time interval between the first current pulse discharge and the second current pulse discharge is from about 20 minutes to about 60 days.

3. The method of claim 2 including discharging the cell to deliver the first current pulse discharge and the second current pulse discharge to the implantable medical device or to a secondary load.

4. The method of claim 2 including discharging the cell to deliver at least two current pulses spaced apart from about 10 to about 30 seconds as both the first current pulse discharge and the second current pulse discharge.

5. The method of claim 2 including discharging the cell to deliver about 15 mA/cm^2 to about 50 mA/cm^2 as the first current pulse discharge and second current pulse discharge.

6. The method of claim 2 including discharging the cell to deliver four current pulses as both the first current pulse discharge and the second current pulse discharge.

7. The method of claim 2 including providing the cell of a lithium/silver vanadium oxide couple.

8. A method for providing electrical energy from an electrochemical cell comprising an alkali metal anode coupled to a cathode of a cathode active material activated with an electrolyte, comprising the steps of:

- a) connecting a negative terminal and a positive terminal of the cell to a load;
- b) powering the load with the cell;
- c) upon the cell reaching about 15% depth-of-discharge (DOD) to about 25% DOD, discharging the cell to deliver at least a first current pulse discharge of significantly greater amplitude than that of a pre-pulse current immediately prior to the first current pulse discharge;
- d) waiting a time interval; and
- e) discharging the cell to deliver at least a second current pulse discharge of significantly greater amplitude than that of a pre-pulse current immediately prior to the second current pulse discharge after the time interval, wherein the time interval between the first current pulse discharge and the second current pulse discharge is from about one day to about 60 days.

9. The method of claim 8 including discharging the cell to deliver the first current pulse discharge and the second current pulse discharge to the load being powered by the cell or to a secondary load.

10. The method of claim 8 including discharging the cell to deliver at least two current pulses as both the first current pulse discharge and the second current pulse discharge.

11. The method of claim 8 including discharging the cell to deliver about 15 mA/cm^2 to about 50 mA/cm^2 as the first current pulse discharge and second current pulse discharge.

12. The method of claim 8 including discharging the cell to deliver four 10-second current pulses with about a 15-second rest between each current pulse as both the first current pulse discharge and the second current pulse discharge.

13. The method of claim 8 including providing the load as an implantable medical device.

14. The method of claim 8 including providing the cathode active material comprising silver vanadium oxide.

15. A method for providing electrical energy from an electrochemical cell comprising an alkali metal anode coupled to a cathode of a cathode active material activated with an electrolyte, comprising the steps of:

a) connecting a negative terminal and a positive terminal of the cell to a load;

b) powering the load with the cell;

c) monitoring the depth-of-discharge (DOD) of the cell; and

d) removing about 2% to about 20% of the cell's discharge capacity upon the cell reaching about 15% to about 25% DOD by causing the cell to deliver at least a first current pulse discharge of significantly greater amplitude than that of a pre-pulse current immediately prior to the first current pulse discharge.

16. The method of claim 15 including discharging the cell to deliver the first current pulse discharge to the load being powered by the cell or to a secondary load.

17. The method of claim 15 including discharging the cell to deliver the first current pulse discharge, waiting a time interval; and then discharging the cell to deliver at least a second current pulse discharge of significantly greater amplitude than that of a pre-pulse current immediately prior to the second current pulse discharge after the time interval, wherein the time interval between the first current pulse discharge and the second current pulse discharge is from about 20 minutes day to about 24 hours.

18. The method of claim 15 including discharging the cell to deliver about 15 mA/cm² to about 50 mA/cm² as the first current pulse discharge.

19. The method of claim 15 including discharging the cell to deliver four current pulses as the first current pulse discharge.

20. The method of claim 15 including providing the load as an implantable medical device.

21. The method of claim 15 including providing the cathode active material comprising silver vanadium oxide.